BIOCHEMICAL AND BIOPHYSICAL Research Communications

EDITORS

John N. Abelson
Ernesto Carafoli
Pedro Cuatrecasas
I. C. Gunsalus
B. L. Horecker
Yasuo Kagawa
M. Daniel Lane
William J. Lennarz
William D. McElroy
Masami Muramatsu
Claude Paoletti
Alberto Sols

Volume 160 • 1989

ACADEMIC PRESS, INC.
Harcourt Brace Jovanovich, Publishers
San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1989 by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1988 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0006-291X/89 $1.50

MADE IN THE UNITED STATES OF AMERICA

BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS

CONTENTS

Volume 160, Number 1, April 14, 1989

AUTHOR INDEX, Volume 160, Number 1, April 14, 1989 iii

A New Class of Orally Active Glycol Renin Inhibitors Containing Phenyllactic Acid at P_3 *Gunnar J. Hanson, John S. Baran, Harman S. Lowrie, Mark A. Russell, Steven J. Sarussi, Kenneth Williams, Maribeth Babler, Stephen E. Bittner, S. E. Papaioannou, Po-Chang Yang, and Gerald M. Walsh* 1

Effects of Adenine Nucleotides on Choriogonadotropin α and β Subunit Synthesis *Fumiko Otani, Tetsuo Otani, and Irving Boime* 6

Mitogen-Induced Topoisomerase II Synthesis Precedes DNA Synthesis in Human Breast Cancer Cells *Richard J. Epstein and Paul J. Smith* 12

Receptor-Mediated Actin Assembly in Electropermeabilized Neutrophils: Role of Intracellular pH *Gregory P. Downey and Sergio Grinstein* 18

Characterization of G25K, a GTP-Binding Protein Containing a Novel Putative Nucleotide Binding Domain *Paul G. Polakis, Ralph Snyderman, and Tony Evans* 25

Cloning and Sequencing of a Phospholipase C Gene of *Clostridium perfringens* *Akinobu Okabe, Tohru Shimizu, and Hideo Hayashi* 33

Novel and Sensitive Noncompetitive Enzyme Immunoassay for Peptides *Koichiro Tanaka, Seiichi Hashida, Takeyuki Kohno, Ken'ichi Yamaguchi, and Eiji Ishikawa* 40

Regio- and Stereoselective Regulation of Monooxygenase Activities by Isoenzyme-Selective Phosphorylation of Cytochrome P450 *B. Bartlomowicz, T. Friedberg, D. Utesch, E. Molitor, K. Platt, and F. Oesch* 46

A Dual-Circular Plasmid Structure Dependent on DNA Replication Generated in Monkey COS7 Cells and Cell Extracts *Shirzad Jenab and Edward M. Johnson* 53

Common Antigenicity of Mouse 42°C-Specific Heat-Shock Protein with Mouse hsp 105 *Ken-ichi Honda, Takumi Hatayama, and Munehiko Yukioka* 60

An Endogenous Inhibitor of the ADP-Ribosylation of GTP-Binding Proteins by Pertussis Toxin Is Present in Bovine Brain *Miki Hara-Yokoyama and Shunsuke Furuyama* 67

Developmental Change and Molecular Properties of Somatostatin Receptors in the Rat Cerebral Cortex *Nobuko Kimura* 72

Human Prostatic Acid Phosphatase: cDNA Cloning, Gene Mapping, and Protein Sequence Homology with Lysosomal Acid Phosphatase *Farida S. Sharief, Hansoo Lee, Mary M. Leuderman, Ake Lundwall, Larry L. Deaven, Ching-li Lee, and Steven S.-L. Li* 79

Vanadate Activation of Bromoperoxidase from *Corallina officinalis* *Hong Yu and James W. Whittaker* 87

Secretory Mechanism of Immunoreactive Endothelin in Cultured Bovine Endothelial Cells *Toshiaki Emori, Yukio Hirata, Kazuki Ohta, Masayoshi Shichiri, and Fumiaki Marumo* 93

Iron Stimulation of Free Radical-Mediated Porphyrinogen Oxidation by Hepatic and Renal Mitochondria *James S. Woods and Carolyn A. Calas* 101

Modification of Protein Stability by Introduction of Disulfide Bridges and Prolines: Geometric Criteria for Mutation Sites
V. N. Balaji, Azita Mobasser, and Shashidhar N. Rao 109
Expression of Human Placental Ribonuclease Inhibitor in *Escherichia coli*
Frank S. Lee and Bert L. Vallee 115
Footprint of the σ Protein *Utpala Ramesh and Claude F. Meares* 121
Interaction of Shigella Toxin with Globotriaosyl Ceramide Receptor-Containing Membranes: A Fluorescence Study *Witold K. Surewicz, Krystyna Surewicz, Henry H. Mantsch, and Francois Auclair* 126
Calcium Binding and Putative Activity of the Epidermal Growth Factor Domain of Blood Coagulation Factor IX *Linda H. Huang, Xiao-Hong Ke, William Sweeney, and James P. Tam* 133
Mitochondria and Xanthine Oxidase Both Generate Reactive Oxygen Species in Isolated Perfused Rat Liver after Hypoxic Injury
Hartmut Jaeschke and Jerry R. Mitchell 140
Recognition of Rat Liver and Kidney Nuclear T_3 Receptors by an Antibody against c-*erb* A Peptide *Hirotoshi Nakamura, Tetsuya Tagami, Kazuhiro Masuda, Takahiko Mitani, and Hiroo Imura* 148
Enhancement in Rats by the Liver Tumor Promoter Ethinyl Estradiol of a Serum Factor(s) Which Is Stimulatory for Hepatocyte DNA Synthesis
Yuenian E. Shi and James D. Yager 154
Nascent Very Low Density Lipoproteins from Rat Hepatocytic Golgi Fractions Are Enriched in Phosphatidylethanolamine
Robert L. Hamilton and Phoebe E. Fielding 162
pp-120: A Common Endogenous Substrate for Insulin and IGF-1 Receptor-Associated Tyrosine Kinase Activity in the Highly Malignant AS-30D Rat Hepatoma Cells *Maurizio Fanciulli, Marco G. Paggi, Andrea Mancini, Carlo Del Carlo, Aristide Floridi, Simeon I. Taylor, and Nicola Perrotti* 168
Caldesmon: Anomalous Electrophoretic Behavior in Polyacrylamide Gel
Paolo Cavanni, Palmina Cavallini, Emiliangelo Ratti, Giovanni Gaviraghi, and Luciano Dalla Libera 174
Mechanism of T Cell Proliferation *in Vivo:* Analysis of IL-2 Receptor Expression and Activation of c-*myc* and c-*myb* Oncogenes during Lymphatic Regeneration *M. Sihvola, L. Sistonen, K. Alitalo, and M. Hurme* 181
Modulation of an RGDS Binding Site on the Platelet Membrane Glycoprotein IIb–IIIa Complex *Samuel A. Santoro and William J. Lawing, Jr.* 189
Inhibition of *in Vivo* DNA Synthesis in Regenerating Rat Liver following Thermal Injury *Edward A. Carter, Sara E. Kirkham, Ronald G. Tompkins, and John F. Burke* 196
Separation and Identification of Two Phosphatidylinositol 4-Kinase Activities in Bovine Uterus *Yue-Sheng Li, Forbes D. Porter, Ruth M. Hoffman, and Thomas F. Deuel* 202
Amino Acid Sequence of a 15-kDa Actin-Binding Fragment of Turkey Gizzard Caldesmon: Similarity with Dystrophin, Tropomyosin, and the Tropomyosin-Binding Region of Troponin T
John Leszyk, Dominique Mornet, Etienne Audemard, and John H. Collins 210
Altered Hepatic Microsomal Function and Elevated Protooncogene Expression as Residual Effects in Rats Exposed to Δ9-Tetrahydrocannabinol
Hullahalli R. Prasanna, Kenji D. Nakamura, Syed F. Ali, Ming H. Lu, William Slikker, Jr., and Ronald W. Hart 217
Identification and Partial Purification of a Novel Tumor-Derived Protein That Induces Tissue Factor on Cultured Human Endothelial Cells
Masashi Noguchi, Toshiyuki Sakai, and Walter Kisiel 222

Receptor Binding Activity and Cytosolic Free Calcium Response by Synthetic Endothelin Analogs in Cultured Rat Vascular Smooth Muscle Cells
Y. Hirata, H. Yoshimi, T. Emori, M. Shichiri, F. Marumo, T. X. Watanabe, S. Kumagaye, K. Nakajima, T. Kimura, and S. Sakakibara 228

Low-Molecular-Weight GTP-Binding Proteins in Human Platelets: Cyclic AMP-Dependent Protein Kinase Phosphorylates m22KG(I) in Membrane but Not c21KG in Cytosol
Koh-ichi Nagata, Seiji Nagao, and Yoshinori Nozawa 235

Detection of Essential Arginine in Bacterial Peptidyl Dipeptidase-4: Arginine Is Not the Anion Binding Site
Joseph J. Lanzillo, Yamuna Dasarathy, and Barry L. Fanburg 243

Characterization of Specific Binding Sites for PAF in the Iris and Ciliary Body of Rabbit *M. T. Domingo, P. E. Chabrier, J. L. Van Delft, N. L. Verbeij, N. J. Van Haeringen, and P. Braquet* 250

Topoisomerase II: A Potential Target for Novel Antifungal Agents
David P. Figgitt, Stephen P. Denyer, Paul M. Dewick, David E. Jackson, and Paul Williams 257

The Benzodiazepine Receptor Ligands RO 5-4864 and RO 15-1788 Do Not Block the Inhibition of PAF-Induced Platelet Aggregation Seen with the Hetrazepine WEB 2086 *Kurt Griffin, Tina Hong, and Joseph V. Levy* 263

Detection of Enhancer Binding Proteins Recognizing the Human Immunodeficiency Virus Long Terminal Repeat by *in Situ* Gel Retardation
Anna T. Brini, Annick Harel-Bellan, Marie Korner, and William L. Farrar 268

The 5′-Region of the P450XIA1(P450scc) Gene Contains a Basal Promoter and an Adrenal-Specific Activating Domain
Bon-chu Chung, Meng-Chun Hu, Char-Chang Lai, and Cheng-Hui Lin 276

Comparison of the Conformation and GTP Hydrolyzing Ability of N-Terminal *ras* p21 Protein Segments
Chien-Hua Niu, Kyou-Hoon Han, and Peter P. Roller 282

Antibodies against an α-Bungarotoxin-Binding Peptide of the α-Subunit of the Acetylcholine Receptor
Diana L. Donnelly-Roberts and Thomas L. Lentz 289

Evidence for Exogenous Substrate Phosphorylation and Dimer Formation by the Activated 190-kDa Insulin Proreceptor *in Vitro*
Richard F. Arakaki, Richard J. Comi, and Phillip Gorden 296

Insulin Receptor Kinase Activity in Rat Adipocytes Is Decreased during Aging
José M. Carrascosa, Pilar Ruíz, Carmen Martínez, Juan A. Pulido, Jorgina Satrústegui, and Antonio Andrés 303

Captopril and Hydralazine Suppress Atrial Natriuretic Peptide (ANP) Gene Expression in the Ventricles of Spontaneously Hypertensive Rats
Kiyoshi Fukui, Hiroshi Iwao, Akio Nakamura, Akira Yamamoto, Toshiaki Tamaki, Tetsuo Shoji, Shoji Kimura, Yasuharu Aki, Kouichi Hasui, Hiroaki Ohkubo, Shigetada Nakanishi, and Youichi Abe 310

Binding of Epidermal Growth Factor by Human Colon Carcinoma Cell (Caco-2) Monolayers *Ismael J. Hidalgo, Akira Kato, and Ronald T. Borchardt* 317

Isolation and Characterization of the cDNA for Pulmonary Surfactant-Associated Protein-B (SP-B) in the Rabbit
Jiejing Xu, Carol Richardson, Carol Ford, Tina Spencer, Yao Li-juan, George Mackie, Geoffrey Hammond, and Fred Possmayer 325

Domain-Specific Bias in Arginine/Lysine Usage by Protein Toxins
Erwin London and Cindy L. Luongo 333

A Novel Method for Measuring Protein Kinase C Activity in a Native Membrane-Associated State *Balu R. Chakravarthy, Douglas J. Franks, James F. Whitfield, and Jon P. Durkin* 340

Expression of Surface Antigen and mRNA for the CD11c (αX, p150) Subunit of the Human Leukocyte Adherence Receptor Family in Hematopoietic Cells *Denise Dudley, Dianne M. Baker, Mark J. Hickey, and Dennis D. Hickstein* 346

Nucleoside Transport in Activated Macrophages *Franco Busolo, Luciano Conventi, Carlo Gatti, Daniela Monti, Leonarda Troiano, and Claudio Franceschi* 354

Kinetics of the Glycation of Bovine Serum Albumin by Mannose and Fucose *in Vitro* *L. J. Davis, G. Hakim, and C. A. Rossi* 362

Inhibition of the Infectivity and Cytopathic Effect of Human Immunodeficiency Virus by Water-Soluble Lignin in an Extract of the Culture Medium of *Lentinus edodes* Mycelia (LEM) *Harumi Suzuki, Akira Okubo, Sunao Yamazaki, Kenzo Suzuki, Hiroaki Mitsuya, and Shozo Toda* 367

Chemical Modification of the Glycine Receptor with Fluorescein Isothiocyanate Specifically Affects the Interaction of Glycine with Its Binding Site *Ana Ruiz Gómez, Clara Fernández-Shaw, Fernando Valdivieso, and Federico Mayor, Jr.* 374

Insulin-like Growth Factor I Stimulates Elastin Synthesis by Bovine Pulmonary Arterial Smooth Muscle Cells *D. B. Badesch, P. D. K. Lee, W. C. Parks, and K. R. Stenmark* 382

Conformation of the α Form of Human Calcitonin Gene-Related Peptide (CGRP) in Aqueous Solution as Determined by Circular Dichroism Spectroscopy *Mark C. Manning* 388

Interactions of Recombinant and Platelet Transforming Growth Factor-β1 Precursor with the Insulin-like Growth Factor II/Mannose 6-Phosphate Receptor *Kristina S. Kovacina, George Steele-Perkins, Anthony F. Purchio, Mario Lioubin, Kohei Miyazono, Carl-Henrik Heldin, and Richard A. Roth* 393

The β Form Is the Dominant Interleukin 1 Released by Murine Peritoneal Macrophages *S. W. Chensue, C. Shmyr-Forsch, I. G. Otterness, and S. L. Kunkel* 404

Cyclosporin A Inhibits Protein Kinase C Activity: A Contributing Mechanism in the Development of Nephrotoxicity? *R. J. Walker, V. A. Lazzaro, G. G. Duggin, J. S. Horvath, and D. J. Tiller* 409

ERRATA

Volume 158, Number 2, January 31, 1989: Nobuyuki Suzuki, Tohru Yoshioka, Yukio Okano, Yoshinori Nozawa, and Masaakira Kano, "Anomalous Increase of Ca^{2+} Current by High Concentration K^+ Stimulation in Whole Cell Clamped GH_3 Cells," pp. 534–540 416

Volume 158, Number 3, February 15, 1989: Ferenc Kilár, Agneta Gustavsson Seidel, and Lennart Häggström, "Zero Field Mössbauer Studies of Diferric Human Transferrin," pp. 755–761 417

Volume 160, Number 2, April 28, 1989

AUTHOR INDEX, Volume 160, Number 2, April 28, 1989 ii

Affinity of Osteogenin, an Extracellular Bone Matrix Associated Protein Initiating Bone Differentiation for Concanavalin A *Vishwas M. Paralkar, Arvind K. N. Nandedkar, and A. H. Reddi* 419

Expression of a Potyvirus Nonstructural Protein in Transgenic Tobacco *Robert Graybosch, Gary M. Hellmann, John G. Shaw, Robert E. Rhoads, and Arthur G. Hunt* 425

The Thiol Proteinase Inhibitors Improve the Abnormal Rapid Down-Regulation of Protein Kinase C and the Impaired Natural Killer Cell Activity in (Chediak–Higash Syndrome) Beige Mouse
Masahiko Ito, Akihiko Sato, Fuminori Tanabe, Eiko Ishida, Yoshiyuki Takami, and Shiro Shigeta 433

Detection of *ras* Point Mutations by Polymerase Chain Reaction Using Mutation-Specific, Inosine-Containing Oligonucleotide Primers
Thomas Ehlen and Louis Dubeau 441

Formation of a Stable and Catalytically Active Complex of the Two Essential Components of Hexaprenyl Diphosphate Synthase from *Micrococcus luteus* B-P 26 *Ichirou Yoshida, Tanetoshi Koyama, and Kyozo Ogura* 448

Translational Regulation of Ferritin Synthesis in Rat Spleen: Effects of Iron and Inflammation *Corinne H. Campbell, Rodney M. Solgonick, and Maria C. Linder* 453

The Major Maturation Glycoprotein Found on Rat Cauda Epididymal Sperm Surface Is Linked to the Membrane via Phosphatidylinositol
Alison Moore, Thomas W. White, Kathy M. Ensrud, and David W. Hamilton 460

ATP-Dependent and DCCD-Insensitive Cl^- Uptake by Membrane Vesicles from the Rat Brain Plasma Membrane Fractions
Tsutomu Shiroya, Edward J. Cragoe, and Chiyoko Inagaki 469

Lack of Phosphorylation of Lipocortin I in A431 Epidermoid Carcinoma Cells Treated with Phorbol Esters *Felicia William, Harry T. Haigler, and Andrew S. Kraft* 474

Role of Calcium in the Phenylephrine-Induced Activation of Phosphorylase "A" in Isolated Liver Cells *J. M. Saz, C. Gonzalez-Manchon, M. S. Ayuso, and R. Parrilla* 480

The Preparation and Biochemical Characterization of Intact Capsids of Equine Infectious Anemia Virus *Michael M. Roberts and Stephen Oroszlan* 486

Histatins, a Family of Salivary Histidine-Rich Proteins, Are Encoded by at Least Two Loci (*HIS1* and *HIS2*) *L. M. Sabatini and E. A. Azen* 495

Evidence That the Enoyl-CoA Hydratase Bifunctional Protein of Mouse Liver Peroxisomes Is Identical with the 70,000-Da Peroxisomal Membrane Protein
Denis I. Crane, Nanhua Chen, and Colin J. Masters 503

Characterization of a Translation Inhibitory Protein from *Luffa aegyptiaca*
S. Ramakrishnan, J. J. Enghlid, H. L. Bryant, Jr., and F-J. Xu 509

Interaction of Mithramycin with Metal Ions and DNA
Benjamin M. G. Cons and Keith R. Fox 517

Evidence for the Presence of DNA Primase in Mitochondria of *Saccharomyces cerevisiae*
Shyamal D. Desai, K. Pasupathy, K. G. Chetty, and D. S. Pradhan 525

Cysteine Is Not an Obligatory Intermediate in the Biosynthesis of Cysteate by *Cytophaga johnsonae*
David F. Gilmore, Walter Godchaux III, and Edward R. Leadbetter 535

Selective Inactivation of MAO-B by Benzyldimethyl-silyl-methanamines *in Vitro*
C. Danzin, J-N. Collard, P. Marchal, and D. Schirlin 540

Lipoxygenase Activities of the Epithelial Cells of the Human Buccal Cavity
Floyd A. Green 545

A Peptide Substrate for *Escherichia coli* Protein Kinase Activity *in Vitro*
M. Dadssi, B. Duclos, and A. J. Cozzone 552

Eicosapentaenoic Acid Reduces the Invasive and Metastatic Activities of Malignant Tumor Cells
Reuven Reich, Leah Royce, and George R. Martin 559

Prostaglandin and Thromboxane in Liposomes: Suppression of the Primary Immune Response to Liposomal Antigens
Nabila M. Wassef, Roberta L. Richards, Michael D. Hayre, and Carl R. Alving 565
The Stereospecific Suicide Inhibition of Human Melanoma Thioredoxin Reductase by 13-*cis*-Retinoic Acid
Karin U. Schallreuter and John M. Wood 573
Preparation and Characterization of Polyclonal Antibodies Specific for the 69- and 100-kDa Forms of Human 2-5A Synthetase
Isabelle Marié, Julien Galabru, Josette Svab, and Ara G. Hovanessian 580
The Effects of Recombinant Human Granulocyte-Macrophage Colony-Stimulating Factor (rhGM-CSF) on Human Osteoblast-like Cells
D. B. Evans, R. A. D. Bunning, and R. G. G. Russell 588
Catalytic Subunit of cAMP-Dependent Protein Kinase from Bovine Heart: Several Isoforms Demonstrated by High-Resolution Focusing in Immobilized pH Gradient *Agnes Hotz, Norbert König, Hisaaki Taniguchi, John C. Chrivia, and Volker Kinzel* 596
Endothelin Immunoreactivity in Medium from Cultured Porcine Aortic Endothelial Cells Correlates with the Biological Activity
Yasujo Matsumura, Ruriko Ikegawa, Tadashi Ohyama, Kazutaka Hayashi, and Shiro Morimoto 602
Thyroid Hormone Suppression of Hepatic Levels of Phenobarbital-Inducible P450b and P450e and Other Neonatal P450S in Hypophysectomized Rats
Yasushi Yamazoe, Norie Murayama, Miki Shimada, and Ryuichi Kato 609
Evidence for a Novel Growth Factor in *Xenopus* Oocytes
Clotilde Théry, Pierre Jullien, and David A. Lawrence 615
Tissue Specific Defect of Complex I of the Mitochondrial Respiratory Chain
N. J. Watmough, M. A. Birch-Machin, L. A. Bindoff, A. Aynsley-Green, K. Simpson, C. I. Ragan, H. S. A. Sherratt, and D. M. Turnbull 623
Endothelin Stimulates Aldosterone Biosynthesis by Dispersed Rabbit Adrenocapsular Cells *Ryuichi Morishita, Jitsuo Higaki, and Toshio Ogihara* 628
Ionic Strength-Dependent Interaction of Rat Liver Casein Kinase I with Plasma Membrane *Eikichi Hashimoto and Hirohei Yamamura* 633
Interspecific Analysis of *Drosophila* Alcohol Dehydrogenase by an Immunoenzymatic Assay Using Monoclonal Antibodies
J. Fibla, L. Enjuanes, and R. Gonzàlez-Duarte 638
A Promising Genomic Transfectant into Xeroderma Pigmentosum Group A with Highly Amplified Mouse DNA and Intermediate UV Resistance Turns Revertant *Martin Blum, Ina Baumann, Horst Lohrer, Hans Jobst Rahmsdorf, and Peter Herrlich* 647
A Pro-drug of Zidovudine with Enhanced Efficacy against Human Immunodeficiency Virus *Sudhir R. Gogu, Sunil K. Aggarwal, S. R. S. Rangan, and Krishna C. Agrawal* 656
Radiommunoassay for Endothelin and Immunoreactive Endothelin in Culture Medium of Bovine Endothelial Cells
Mitsuhide Naruse, Kiyoko Naruse, Fumihiko Kurimoto, Junko Horiuchi, Ken Tsuchiya, Masatoshi Kawana, Yuko Kato, Zheng-Pei Zeng, Hyoichiro Sakurai, Hiroshi Demura, and Kazuo Shizume 662
Mutations at the Distal and Proximal Sites of Cytochrome $P450_d$ Changed Regio-Specificity of Acetanilide Hydroxylations *Hideyuki Furuya, Toru Shimizu, Masahiro Hatano, and Yoshiaki Fujii-Kuriyama* 669
Crystallographic Characterization and Three-Dimensional Model of Yeast Cu,Zn Superoxide Dismutase *Francesco Frigerio, Mattial Falconi,*

Giuseppina Gatti, Martino Bolognesi, Alessandro Desideri, Franco Marmocchi, and Giuseppe Rotilio 677

Induction of Plasminogen Activator Activity by Phorbol Ester in Transformed Fetal Bovine Aortic Endothelial Cells: Possible Independence from Protein Kinase C *J. A. M. Maier, M. Presta, and G. Ragnotti* 682

Extremely Low Frequency Pulsed Electromagnetic Fields Increase Cell Proliferation in Lymphocytes from Young and Aged Subjects *A. Cossarizza, D. Monti, F. Bersani, M. Cantini, R. Cadossi, A. Sacchi, and C. Franceschi* 692

Characteristic Effects of Taste-Compounds on the Dynamic Behavior of Oleate-Monolayer *Kenichi Yoshikawa, Masaru Shoji, and Toshio Ishii* 699

Circulating Human Blood Platelets Retain Appreciable Amounts of Poly(A)$^+$ RNA *Gerald J. Roth, Mark J. Hickey, Dominic W. Chung, and Dennis D. Hickstein* 705

Alteration of DNA Primase Activity by Phosphorylation and Dephosphorylation of Histone H1 *Shigeo Takada, Toyokazu Magira, and Masaichi Yamamura* 711

Role of Protein X in the Function of the Mammalian Pyruvate Dehydrogenase Complex *Subramanian Gopalakrishnan, Mohammed Rahmatullah, Gary A. Radke, Susan Powers-Greenwood, and Thomas E. Roche* 715

cAMP-Dependent Binding of a *trans*-Acting Factor to the Thyroglobulin Promoter *Carole Hansen, Francoise Javaux, Guillermo Juvenal, Gilbert Vassart, and Daniel Christophe* 722

Preparation of EGF Labeled Liposomes and Their Uptake by Hepatocytes *Youichi Ishii, Yukihiko Aramaki, Toshihumi Hara, Seishi Tsuchiya, and Toru Fuwa* 732

Activation of Neutrophil Calpain following Its Translocation to the Plasma Membrane Induced by Phorbol Ester or fMet–Leu–Phe *S. Pontremoli, E. Melloni, F. Salamino, M. Patrone, M. Michetti, and B. L. Horecker* 737

Endothelin-Induced Biphasic Formation of 1, 2-Diacylglycerol in Cultured Rabbit Vascular Smooth Muscle Cells—Mass Analysis with a Radioenzymatic Assay *Michitoshi Sunako, Yasuhiro Kawahara, Ken-ichi Kariya, Shun-ichi Araki, Hisashi Fukuzaki, and Yoshimi Takai* 744

Endothelin-Induced Mobilization of Ca^{2+} and the Possible Involvement of Platelet Activating Factor and Thromboxane A_2 *Miki Takayasu, Koichi Kondo, and Shinji Terao* 751

Inhibition by Nicardipine on Endothelin-Mediated Inositol Phosphate Formation and Ca^{2+} Mobilization in Smooth Muscle Cell *Yu-Ting Xuan, A. R. Whorton, and W. David Watkins* 758

Heteroplasmy of Mitochondrial Genomes in Clonal Cultures form Patients with Kearns–Sayre Syndrome *Carlos T. Moraes, Eric A. Schon, Salvatore DiMauro, and Armand F. Miranda* 765

Phosphorylation of Peripherin, and Intermediate Filament Protein, in Mouse Neuroblastoma NIE115 Cell Line and in Sympathetic Neurons *Claude Huc, Michel Escurat, Karima Djabali, Michèle Derer, Françoise Landon, François Gros, and Marie-Madeleine Portier* 772

Competitive Binding of Gangliosides and Glycophorin to Wheat Germ Agglutinin *Pat M. Lee and Kong-Hung Lee* 780

Release of Insulin-like Growth Factor Carrier Proteins by Osteoblasts: Stimulation by Estradiol and Growth Hormone *Christoph Schmid, Matthias Ernst, Jürgen Zapf, and E. Rudolf Froesch* 788

Infusion of Human Insulin-like Growth Factor I (IGF-I) into Malnourished Rats Reduces Hepatic IGF-I mRNA Abundance
Don S. Schalch, Huan Yang, Denise M. Ney, and Richard D. DiMarchi 795

Uncoupled Na^+-Efflux on Reconstituted Shark Na,K-ATPase Is Electrogenic
Flemming Cornelius 801

Release of Atrial Natriuretic Factor (ANF) Induced by Acute Airway Obstruction
R. Amyot, M. C. Michoud, T. Leduc, S. Marleau, H. Ong, P. DuSouich, P. Larochelle, P. Hamet, and O. Küchel 808

Generation of Nitric Oxide by Human Neutrophils
Clifford D. Wright, Alexander Mülsch, Rudi Busse, and Hartmut Osswald 813

Induction of Differentiation of Human Monoblastic and Myeloblastic Leukemia Cell Lines by TNF Muteins
Ryutaro Kamijo, Ken Takeda, Masao Nagumo, Kunio Konno, Akira Hasegawa, Koji Inaka, and Morio Ikehara 820

Steroid Induced Exocytosis: The Human Sperm Acrosome Reaction
Richard A. Osman, Matthew L. Andria, A. Daniel Jones, and Stanley Meizel 828

Iron Binding to α-Tocopherol-Containing Phospholipid Liposomes
D. A. Stoyanovsky, V. E. Kagan, and L. Packer 834

Cytochrome Oxidase of an Acidophilic Iron-Oxidizing Bacterium, *Thiobacillus ferrooxidans*, Functions at pH 3.5
Masahiro Kai, Takahiro Yano, Yoshihiro Fukumori, and Tateo Yamanaka 839

Deuterium Isotope Effects on Toluene Metabolism: Product Release as a Rate-Limiting Step in Cytochrome P450 Catalysis
Kah-Hiing John Ling and Robert P. Hanzlik 844

Isolation, Primary Structure, and Bioactivity of Schistoflrf-Amide, a FMRF-Amid-like Neuropeptide from the Locust, *Schistocerca gregaria*
Sandra Robb, Leonard C. Packman, and Peter D. Evans 850

α-Sarcin Impairs the *N*-Glycosidase Activity of Ricin on Ribosomes
Simonetta Sperti, Mariacristina Zamboni, Maurizio Brigotti, Fioretta Rambelli, and Lucio Montanaro 857

Isolation and Primary Structure of Rat Secretin
Denis Gossen, André Vandermeers, Marie-Claire Vandermeers-Piret, Jean Rathé, Annick Cauvin, Patrick Robberecht, and Jean Christophe 862

Phorbol Ester Dissociates Endothelin-Stimulated Phosphoinositide Hydrolysis and Arachidonic Acid Release in Vascular Smooth Muscle Cells
Elwood E. Reynolds, Lester L. S. Mok, and Shingo Kurokawa 868

Intracellular Accumulation of Cholesteryl Esters Suppresses Production of Lipopolysaccharide-Induced Interleukin-1 by Rat Peritoneal Macrophages
Yoshio Haga, Koyoko Takata, Norie Araki, Kiyoshi Sakamoto, Masanobu Akagi, Yoshimasa Morino, and Seikoh Horiuchi 874

N^G-Methylarginine, an Inhibitor of Endothelium-Derived Nitric Oxide Synthesis, Is a Potent Pressor Agent in the Guinea Pig: Does Nitric Oxide Regulate Blood Pressure *in Vivo?*
Kazuo Aisaka, Steven S. Gross, Owen W. Griffith, and Roberto Levi 881

Identification of a Protein Cross-Reacting with Anti-phosphotyrosine Antibodies in Yeast Insoluble Cytoplasmic Matrices
R. Grandiori, M. Vai, M. F. Di Renzo, L. Alberghina, and L. Popolo 887

Bovine Myeloperoxidase and Lactoperoxidase Each Contain a High Affinity Site for Calcium
Karla S. Booth, Shioko Kimura, H. Caroline Lee, Masao Ikeda-Saito, and Winslow S. Caughey 897

cDNA Coding for the Entire Human Prostate Specific Antigen Shows High Homologies to the Human Tissue Kallikrein Genes
Pirkko Henttu and Pirkko Vihko 903

The Latent Form of Macropain (High-Molecular-Weight Multicatalytic Protease) Restores ATP-Dependent Proteolysis to Soluble Extracts of BHK Fibroblasts Pretreated with Anti-macropain Antibodies
Michael J. McGuire and George N. DeMartino 911
Biological and Chemical Characterization of Basic FGF-Saporin Mitotoxin
Douglas A. Lappi, Darlene Martineau, and Andrew Baird 917
Endothelin Stimulates the Release of Prostacyclin from Rat Mesenteric Arteries
Hiromi Rakugi, Mitsuaki Nakamaru, Yoshikatsu Tabuchi, Masahiro Nagano, Hiroshi Mikami, and Toshio Ogihara 924
Homologous Regulation of Voltage-Dependent Calcium Channels by 1,4-Dihydropyridines *A. Skattebøl, A. M. Brown, and D. J. Triggle* 929
Use of Antisense RNA to Help Identify a Genomic Clone for the 5′ Region of Mouse β-Glucuronidase *Arturo Bevilacqua and Robert P. Erickson* 937
Affinity Labeling of Bovine Opsin by *trans*-Retinoyl Chloromethane
Alfin D. N. Vaz and Guenther Schoellmann 942
Glass Transition of Deoxymyoglobin Probed by Optical Absorption Spectroscopy
Takashi Kushida, Jeung Sun Ahn, Kuniko Hirata, and Atusi Kurita 948
Occurrence of the Erythroid Cell Specific Arachidonate 15-Lipoxygenase in Human Reticulocytes
Peter Kroschwald, Alexandra Kroschwald, Hartmut Kühn, Peter Ludwig, Bernd J. Thiele, Marina Höhne, Tankred Schewe, and Samuel M. Rapoport 954
Islet Amyloid Polypeptide Inhibits Glucose-Stimulated Insulin Secretion from Isolated Rat Pancreatic Islets
H. Ohsawa, A. Kanatsuka, T. Yamaguchi, H. Makino, and S. Yoshida 961
Characterization of a Somatostatin-28 Generating Metallo-endoprotease from Rat Brain Cytosol *Margery C. Beinfeld, Julie Bourdais, Alain Morel, Paul F. M. Kuks, and Paul Cohen* 968

Volume 160, Number 3, May 15, 1989

AUTHOR INDEX, Volume 160, Number 3, May 15, 1989 iii
Increased Expression of Urokinase mRNA in Bovine Aortic Endothelial Cells Treated with Propranolol *Francesca Peracchia, Nadia Polentarutti, Francesco Colotta, and Luciana Mussoni* 977
Inhibition of Reverse Transcriptase Activity by a Flavonoid Compound, 5,6,7-Trihydroxyflavone *Katsuhiko Ono, Hideo Nakane, Masanori Fukushima, Jean-Claude Chermann, and Françoise Barré-Sinoussi* 982
The 3-Hydroxyacyl-CoA Epimerase Activity of Rat Liver Peroxisomes Is Due to the Combined Actions of Two Enoyl-CoA Hydratases. A Revision of the Epimerase-Dependent Pathway of Unsaturated Fatty Acid Oxidation
Tor E. Smeland, Jianxun Li, Chin-hung Chu, Dean Cuebas, and Horst Schultz 988
Phosphorylation of Microtubule-Associated Protein 2 by MAP Kinase Primarily Involves the Projection Domain
Christopher C. Silliman and Thomas Wayne Sturgill 993
Ligand and Voltage Gated Sodium Channels May Regulate Electrogenic Pump Activity in Human, Mouse, and Rat Lymphocytes
Carlo Pieri, Rina Recchioni, Fausto Moroni, Lássló Balkay, Teréz Márián, Lajos Trón, and Sándor Damjanovich 999
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) Kills Glucocorticoid-Sensitive Thymocytes *in Vivo* *David J. McConkey and Sten Orrenius* 1003

CONTENTS OF VOLUME 160

19-Hydroxy-4-androsten-17-one: Potential Competitive Inhibitor of Estrogen Biosynthesis *Mitsuteru Numazawa, Ayako Mutsumi, Kumiko Hoshi, and Ryoji Koike* 1009

Achatin-I, an Endogenous Neuroexcitatory Tetrapeptide from *Achatina fulica* Férussac Containing a D-Amino Acid Residue *Yoshimi Kamatani, Hiroyuki Minakata, Peter T. M. Kenny, Takashi Iwashita, Kazuko Watanabe, Kozo Funase, Xia Ping Sun, Anchalee Yongsiri, Kah Hwi Kim, Philipp Novales-Li, Erlinda T. Novales, Carmen G. Kanapi, Hiroshi Takeuchi, and Kyosuke Nomoto* 1015

Production of Proteases Type Plasminogen Activator and Their Inhibitor in Cornea *M. Mirshahi, S. Mirshahi, C. Soria, J. Soria, A. Thomaidis, Y. Pouliquen, and J. P. Faure* 1021

Proacrosin Activation in the Presence of a 32-kDa Protein from Boar Spermatozoa *Tadashi Baba, Yuichi Michikawa, Shin-ichi Kashiwabara, and Yuji Arai* 1026

Heteronuclear $^{15}N/^{1}H$ Spin Echo NMR: An *in Vitro* Quantitative Analysis of Leucine Transamination in Rat Skeletal Muscle *D. Meynial-Denis, J. P. Renou, and M. Arnal* 1033

Expression of Rat Renal γ-Glutamyltransferase cDNA in *Escherichia coli* *Carolyn Angele, Maria Wellman, Christine Thioudellet, Georges Guellaen, and Gerard Siest* 1040

Differential Effects of PDGF and PDGF-BB on Vascular Smooth Muscle Cells *Christopher F. Reilly and Jill E. Broski* 1047

Superoxide Dismutase Amplifies Dye Photosensitized Production of Desferal Free Radical: An Electron Spin Resonance Study *Anson S. W. Li, Anthony H. de Haas, Colin F. Chignell, and Ann G. Motten* 1055

Homology between a Region of the Human Retinoblastoma Gene and L1 Family Repetitive Sequences *Yoichi Taya, Kunihiko Watanabe, and Susumu Nishimura* 1061

Radical Production in Liver Mitochondria by Peroxidic Tumor Promoters *Christopher H. Kennedy, John M. Dyer, Daniel F. Church, Gary W. Winston, and William A. Pryor* 1067

Lithium Chloride Restores Host Protein Synthesis in Herpes Simplex Virus-Infected Endothelial Cells *Zahra Ziaie and Nicholas A. Kefalides* 1073

Increased Chromosomal Radiosensitivity of a Chinese Hamster Ovary Cell Line That Inducibly Expresses the ECO RI Restriction Endonuclease *Richard A. Winegar, M. Catherine Land, and William F. Morgan* 1079

Purification of a Lipoprotein Lipase-Inhibiting Protein Produced by a Melanoma Cell Line Associated with Cancer Cachexia *Mitsuo Mori, Ken Yamaguchi, and Kaoru Abe* 1085

Production of Functional S-II in *Bombyx mori* Cells *Shoji Hirashima, Nobuo Horikoshi, Kazuhisa Sekimizu, and Shunji Natori* 1093

Transforming Growth Factor α Stimulates Prostacyclin Production by Cultured Human Vascular Endothelial Cells More Potently than Epidermal Growth Factor *Ari Ristimäki* 1100

Plasmid-Encoded Lysostaphin Endopetidase Resistance of *Staphylococcus simulans* Biovar *Staphylolyticus* *H. E. Heath, Lucie S. Heath, James D. Nitterauer, Karen E. Rose, and Gary L. Sloan* 1106

Fatty Acyl Esters Potentiate Fatty Acid Induced Activation of Protein Kinase C *Oksana Holian, Raj Kumar, and Lloyd M. Nyhus* 1110

Initiation of Transcription of rDNA in Rice *K. Nandabalan and J. D. Padayatty* 1117

CONTENTS OF VOLUME 160

Identification and Isolation from Bovine Epithelial Lens Cells of Two Basic Fibroblast Growth Factor Receptors That Possess bFGF-Enhanced Phosphorylation Activities
Pierre R. Blanquet, Christine Patte, Nicole Fayein, and Yves Courtois 1124

Valinomycin Binds Stoichiometrically to Cytochrome C Oxidase and Changes Its Structure and Function *Dietmar Steverding and Bernhard Kadenbach* 1132

Solubilization and Characterization of Erythropoietin Receptor from Transplantable Mouse Erythroblastic Leukemic Cells *Kiyotaka Hitomi, Seiji Masuda, Katsuhiko Ito, Masatsugu Ueda, and Ryuzo Sasaki* 1140

Detection of Glycoproteins as Tumor-Associated Hanganutziu-Deicher Antigen in Human Gastric Cancer Cell Line, NUGC4
Yukio Fukui, Morimasa Maru, Ken-ichi Ohkawara, Tamotsu Miyake, Yoshio Osada, Daqing Wang, Tetsuya Ito, Hideyoshi Higashi, Masaharu Naiki, Nobutaka Wakamiya, and Shiro Kato 1149

Avian Thymic Hormone (ATH) Is a Parvalbumin
John M. Brewer, John K. Wunderlich, Doo-Ha Kim, Michel Y. Carr, Gwendolyn G. Beach, and William L. Ragland 1155

Mechanisms of Reoxygenation Injury in Myocardial Infarction: Implications of a Myoglobin Redox Cycle *Dimitrios Galaris, Lynne Eddy, Arduino Arduini, Enrique Cadenas, and Paul Hochstein* 1162

An *in Vitro* Model of Nephrocalcinosis Using Rabbit Inner Medullary Collecting Tubular Cell Culture *J. C. M. Senior, J. E. Scoble, Z. Varghese, P. Sweny, and J. F. Moorhead* 1169

Non-C-G Recognition Sequences of DNA Cytosine-5-methyltransferase from Rat Liver *K. Hubrich-Kühner, H.-J. Buhk, H. Wagner, H. Kröger, and D. Simon* 1175

Evidence for a Peroxidatic Oxidation of Norepinephrine, a Catecholamine, by Lactoperoxidase *Diana Metodiewa, Krzysztof Reszka, and H. Brian Dunford* 1183

Molecular Dynamics of Antitumor Ether-Linked Phospholipids in Model Membranes: A Spin-Label Study *Chiang-San Lai, Joy Joseph, and Charles C.-Y. Shih* 1189

Polyamine-Mediated Control of Mammalian *S*-Adenosyl-L-methionine Decarboxylase Expression: Effects on the Content and Translational Efficiency of the mRNA *Lo Persson, Louise Stjernborg, Ingvar Holm, and Olle Heby* 1196

Partial Purification and Characterization of a New p36/40 Tyrosine Protein Kinase from HL-60 *Jean A. Boutin, Anne-Pascale Ernould, Annie Genton, and Claude A. Cudennec* 1203

Magnesium Monoperoxophtalate: An Efficient Single Oxygen Atom Donor in DNA Cleavage Catalyzed by Metalloporphyrin *Geneviève Pratviel, Jean Bernadou, Marco Ricci, and Bernard Meunier* 1212

Non-leaky Vesiculation of Large Unilamellar Vesicles (LUV) Induced by Plasma High Density Lipoproteins (HDL): Detection by HPLC
U. Tischler, D. Rückert, R. Schubert, H. W. Jaroni, and K. H. Schmidt 1219

Effect of ACTH on the Stability of mRNAs Encoding Bovine Adrenocortical P450scc, P45011β, P45017α, P450C21, and Adrenodoxin
Vijayakumar Boggaram, Maliyakal E. John, Evan R. Simpson, and Michael R. Waterman 1227

Affinity-Purified Site-Directed Antibody Recognizes the Entire Annexin Protein Family *Marcia A. Kaetzel and John R. Dedman* 1233

CONTENTS OF VOLUME 160

The Effect of Long-Term Consumption of Fish Oil on Platelet-Activating Factor Synthesis in Rat Renal Microsomes
Young K. Yeo, D-J. Philbrick, and Bruce J. Holub 1238

Oleate-Induced Translocation of Protein Kinase C to Hepatic Microsomal Membranes *Lisardo Boscá, Maria J. M. Diaz-Guerra, and Marina Mojena* 1243

Rapid Cloning of Rearranged Immunoglobulin Genes from Human Hybridoma Cells Using Mixed Primers and the Polymerase Chain Reaction
James W. Larrick, Lena Danielsson, Carol A. Brenner, Magnus Abrahamson, Kirk E. Fry, and Carl A. K. Borrebaeck 1250

Disruption of the *Saccharomyces cerevisiae* Gene for NADPH-Cytochrome P450 Reductase Causes Increased Sensitivity to Ketoconazole
Thomas R. Sutter and John C. Loper 1257

An Amino-Terminally Extended and Post-translationally Modified Form of a 25 kDa Basic Fibroblast Growth Factor
Andreas Sommer, David Moscatelli and Daniel B. Rifkin 1267

Biosynthesis of Phosphatidylethanolamine via the CDP-Ethanolamine Route Is an Important Pathway in Isolated Rat Hepatocytes
Lilian B. M.Tijburg, Math J. H. Geelen, and Lambert M. G. Van Golde 1275

Methylation of the Vitamin D-Dependent CaBP Gene (Calbindin 9 kDa) Does Not Mediate Tissue or Vitamin D Regulation *Hisham M. Darwish, John Krisinger, and Hector F. DeLuca* 1281

Glucose-6-phosphate Dehydrogenase. Characterization of a Reactive Lysine Residue in the *Pichia jadinii* Enzyme Reveals a Limited Structural Variation in a Functionally Significant Segment *Jonathan Jeffery, Irene Wood, Alistair Macleod, Rachel Jeffery, and Hans Jörnvall* 1290

Identification of β Protein Precursor in Newborn Rat Brain
Koji Takio, Masato Hasegawa, Koiti Titani, and Yasuo Ihara 1296

Endothelin-Induced Ca-Independent Contraction of the Porcine Coronary Artery
Mayuko Kodama, Hideo Kanaide, Shimako Abe, Katsuya Hirano, Hisashi Kai, and Motoomi Nakamura 1302

Inhibition of Tyrosine Protein Kinases by the Antineoplastic Agent Adriamycin
Arianna Donella-Deana, Elena Monti, and Lorenzo A. Pinna 1309

Characteristics of the Myosin and Tropomyosin Binding Regions of the Smooth Muscle Caldesmon *Eisaku Katayama, Kurumi Y. Horiuchi, and Samuel Chacko* 1316

Neutral Endopeptidase 24.11 and Angiotensin Converting Enzyme-like Activity in CALLA Positive and CALLA Negative Lymphoid Cells
A. Beaumont, J. C. Brouet, and B. P. Roques 1323

Chloride Transport in Human Fibroblasts Is Activated by Hypotonic Shock
Michela Rugolo, Teresa Mastocola, Alberto Flamigni, and Giorgio Lenaz 1330

Inhibitors of Cellular Proteolysis Cause Increased Secretion from Parathyroid Cells *Ronal R. MacGregor and Devi D. Bansal* 1339

Possible Involvement of Microfilaments in Protein Kinase C Translocation
Masahiko Ito, Fuminori Tanabe, Akihiko Sato, Eiko Ishida, Yoshiyuki Takami, and Shiro Shigeta 1344

An Angiotensin II Antagonist with Strongly Prolonged Action
M. Holck, R. Bossé, W. Fischli, H. Gerold, and E. Escher 1350

Naturally Occurring Anti-band 3 Autoantibodies Recognize a High Molecular Weight Protein on the Surface of *Plasmodium falciparum* Infected Erythrocytes *E. Winograd and I. W. Sherman* 1357

CONTENTS OF VOLUME 160

Purification and Structural Determination of Urinary NH_2-Terminal Big Gastrin Fragments *Yoshifumi Higashimoto, Seiichi Himeno, Yasuhisa Shinomura, Kazuhiro Nagao, Toshiaki Tamura, and Seiichiro Tarui* 1364

Caldesmon Structure and Function: Sequence Analysis of a 35 kDa Actin- and Calmodulin-Binding Fragment from the C-Terminus of the Turkey Gizzard Protein *John Leszyk, Dominique Mornet, Etienne Audemard, and John H. Collins* 1371

The Binding Activities of Proteins That Bind Ap_4A, an Alarmone, Are Stimulated in the Presence of Ethanol or Phosphatidylethanolamine *Yasuko Kobayashi and Kazuoki Kuratomi* 1379

Angiotensin 'Antipeptides': (−)Messenger RNA Complementary to Human Angiotensin II (+)Messenger RNA Encodes an Angiotensin Receptor Antagonist *Graham J. Moore, Renee C. Ganter, and Kevin J. Franklin* 1387

Atrial Natriuretic Factor Inhibits Proliferation of Vascular Smooth Muscle Cells Stimulated by Platelet-Derived Growth Factor *T. J. Abell, A. M. Richards, H. Ikram, E. A. Espiner, and T. Yandle* 1392

A G4-DNA/B-DNA Junction at Codon 12 of c-Ha-*ras* Is Actively and Asymmetrically Methylated by DNA(cytosine-5)methyltransferase *Steven S. Smith, David J. Baker, and Lori A. Jardines* 1397

Production of Monocyte Chemotactic and Activating Factor (MCAF) by Human Dermal Fibroblasts in Response to Interleukin 1 or Tumor Necrosis Factor *Christian G. Larsen, Claus O. C. Zachariae, Joost J. Oppenheim, and Kouji Matsushima* 1403

Evidence for Intermediate Channelling in the Glycolytic Pathway of Permeabilized L-929 Cells *James S. Clegg and Susan A. Jackson* 1409

Effect of Two Different Glucose Concentrations on Insulin Receptor mRNA Levels in Human Hepatoma HepG2 Cells *Paola Briata, Roberto Gherzi, Luciano Adezati, and Renzo Cordera* 1415

Accumulation of Unglycosylated Liver Secretory Glycoproteins in the Rough Endoplasmic Reticulum *Tet-Kin Yeo, Kiang-Teck Yeo, and Kenneth Olden* 1421

Chemical Synthesis and Expression of a Gene Encoding HIV-1 TAT Protein *B. Q. Ferguson, B. K. Friedland, E. Hendrickson, L. Strehl, S. R. Petteway, and G. J. Jonak* 1429

Specific Receptor for Endothelin in Cultured Rat Cardiocytes *Yukio Hirata, Yuka Fukuda, Hiroki Yoshimi, Toshiaki Emori, Masayoshi Shichiri, and Fumiaki Marumo* 1438

Author Index for Volume 160 1445

NOTICE

The Subject Index for Volume 160 will appear as part of a cumulative index for the year 1989.